

**SLOVENSKI STANDARD**  
**kSIST-TS FprCEN/CLC/ETSI TR 101550:2022**  
**01-februar-2022**

---

**Dokumenti v povezavi z EN 301 549 (V1.1.1) "Zahteve za dostopnost pri javnem naročanju izdelkov IKT in storitev v Evropi"**

Documents relevant to EN 301 549 (V1.1.1) "Accessibility requirements suitable for public procurement of ICT products and services in Europe"

Relevante Dokumente zu EN 301 549 (V1.1.1) "Barrierefreiheitsanforderungen, geeignet für die öffentliche Beschaffung von IKT-Produkten und -Dienstleistungen in Europa"

**ITeh STANDARD  
PREVIEW  
(standards.itech.ai)**

**Ta slovenski standard je istoveten z: FprCEN/CLC/ETSI TR 101550**

<https://standards.itech.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022>

**ICS:**

35.020	Informacijska tehnika in tehnologija na splošno	Information technology (IT) in general
--------	---	--

<b>kSIST-TS FprCEN/CLC/ETSI TR 101550:2022</b>	<b>en,fr,de</b>
--	-----------------

**iTeh STANDARD  
PREVIEW  
(standards.iteh.ai)**

[KSIST-TS FprCEN/CLC/ETSI TR 101550:2022](https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022)  
<https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022>

TECHNICAL REPORT  
RAPPORT TECHNIQUE  
TECHNISCHER BERICHT

**FINAL DRAFT**  
**FprCEN/CLC/ETSI TR 101**  
**550**

December 2021

ICS

Will supersede CEN/CLC/ETSI TR 101550:2014

English version

Documents relevant to EN 301 549 (V1.1.1) "Accessibility requirements suitable for public procurement of ICT products and services in Europe"

To be completed

Relevante Dokumente zu EN 301 549 (V1.1.1)  
"Barrierefreiheitsanforderungen, geeignet für die öffentliche Beschaffung von IKT-Produkten und -Dienstleistungen in Europa"

This draft Technical Report is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/CLC/ETSI/SWG eAcc.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

**Warning** : This document is not a Technical Report. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a Technical Report.

<https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## Reference

RTR/HF-00301557

## Keywords

accessibility, HF, ICT, procurement

**CEN**Rue de la science, 23  
B-1040 Brussels - BELGIUMTel: + 32 2 550 08 11  
Fax: + 32 2 550 08 19**CENELEC**Rue de la science, 23  
B-1040 Brussels - BELGIUMTel.: +32 2 519 68 71  
Fax: +32 2 519 69 19**ETSI**650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCETel.: +33 4 92 94 42 00  
Fax: +33 4 93 65 47 16Siret N° 348 623 562 00017 - APE 7112B  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° w061004871**Important notice**

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at [www.etsi.org/deliver](http://www.etsi.org/deliver).

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommitteeSupportStaff.aspx>[ksist-ts-fprcen-clc-etsi@etsi.org](mailto:mailto:ksist-ts-fprcen-clc-etsi@etsi.org)**Notice of disclaimer & limitation of liability**

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2021.

© Comité Européen de Normalisation 2021.

© Comité Européen de Normalisation Electrotechnique 2021

All rights reserved.

# Contents

Intellectual Property Rights .....	4
Foreword.....	4
Modal verbs terminology .....	4
Introduction .....	5
1 Scope .....	6
2 References .....	6
2.1 Normative references .....	6
2.2 Informative references .....	6
3 Definition of terms, symbols and abbreviations.....	8
3.1 Terms .....	8
3.2 Symbols .....	8
3.3 Abbreviations.....	8
4 Overview .....	9
5 Preparation of the EN requirements .....	9
5.1 General.....	9
5.2 Global issues within the EN.....	11
5.3 Definitions (clause 3 of the EN) .....	12
5.4 Functional performance (clause 4 of the EN) .....	13
5.4.1 Functional performance statements.....	13
5.4.2 Mapping between requirements and functional performance statements.....	14
5.5 Generic requirements (clause 5 of the EN) .....	15
5.6 ICT with two-way voice communications (clause 6 of the EN).....	15
5.6.1 Audio bandwidth for speech (informative recommendation) (clause 6.1 of the EN).....	15
5.6.2 Real-Time Text (RTT) functionality (clause 6.2 of the EN) .....	15
5.7 Video communication (clause 6.6 of the EN).....	16
5.8 Hardware (clause 8 of the EN).....	16
5.8.1 Hardware products with speech output (clause 8.2 of the EN).....	16
5.8.2 Fixed-line devices (clause 8.2.2.1 of the EN) .....	16
5.8.3 Wireless communication devices (clause 8.2.2.2 of the EN) .....	16
5.8.4 Physical access to ICT (clause 8.3 of the EN).....	16
5.8.5 Mechanically operable parts (clause 8.4 of the EN).....	18
5.9 Web (clause 9 of the EN).....	18
5.10 Non-web documents (clause 10 of the EN) .....	19
5.11 Non-web software (clause 11 of the EN).....	20
5.11.1 Software success criteria (clause 11.2 of the EN) .....	20
5.11.2 Interoperability with assistive technologies (clause 11.3 of the EN) .....	21
5.11.3 Authoring tools (clause 11.6 of the EN).....	21
5.12 ICT providing relay or emergency service access (clause 13 of the EN) .....	21
5.13 Annex B .....	21
5.14 Annex C .....	22
6 Documents used for the development of test procedures.....	22
6.1 Simple tests based on inspection or testing.....	22
6.2 Tests with processes defined in other standards .....	22
6.3 Selective testing .....	22
7 New tests and evaluation methods .....	23
7.1 New tests.....	23
7.2 Further research .....	23
7.2.1 Contrast .....	23
7.2.2 Anthropometry .....	23
7.2.3 Usage with limited cognition .....	24
7.2.4 Real-time text correctness .....	24
7.2.5 The physical design of installed and free-standing ICT .....	24
History .....	25

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

---

## Foreword

(standards.iteh.ai)

This Technical Report (TR) has been produced by ETSI Technical Committee Human Factors (HF).

<https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022>

---

## Modal verbs terminology

In the present document "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

---

## Introduction

The present document was prepared in response to Phase 2 of Mandate M 376 [i.9] from the European Commission to CEN, CENELEC and ETSI.

The primary objective of Mandate M 376 was to produce a European Standard (EN 301 549 (V1.1.1) [i.3]), hereafter, for the purpose of the present document, called "the EN", that sets out in a single source, detailed, practical and quantifiable functional accessibility requirements which: take note of global initiatives in that field, are applicable to all ICT products and services identified in Phase I, and are usable in public procurement.

The present document is one of two Technical Reports that support the EN. The present document lists the standards and technical specifications used in the creation of the compliance requirements for accessibility set out in EN 301 549 (V1.1.1) [i.3]. It also provides a source reference for other documents needed to implement the test procedures required by the EN.

The present document also notes new test methods developed during the work on the EN and identifies exceptional cases where further research was found to be necessary. It does not address additional sources or issues raised during the creation of later versions of the EN.

A second Technical Report (CEN/CLC/ETSI TR 101 551 [i.7]) gives guidance to procurers on the award criteria relevant to each area of user needs in the products and services under consideration.

# iTeh STANDARD PREVIEW (standards.iteh.ai)

[kSIST-TS FprCEN/CLC/ETSI TR 101550:2022](https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022)  
<https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022>

# 1 Scope

The present document lists the documents used in the creation of EN 301 549 (V1.1.1) [i.3] on accessibility requirements for public procurement of ICT products and services in Europe and provides a source reference for any other documents needed to implement the test procedures specified in that document.

As well as identifying the sources for the EN content, the present document also provides additional explanation to assist users of the EN with clarifications and supporting information about measurement methods, particularly where no globally agreed test presently exists.

Where there are any test gaps, these are identified and test descriptions and evaluation methodologies are developed. In those exceptional cases where it is not possible to do so, recommendations are given on how the gaps should be filled. The present document does not address additional sources or issues raised during the creation of later versions of the EN.

## 2 References

### 2.1 Normative references

Normative references are not applicable in the present document.

### 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ANSI C63.19 (2011): "Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids".
- [i.2] ETSI EG 201 013: "Human Factors (HF); Definitions, abbreviations and symbols".
- [i.3] EN 301 549 (V1.1.1): "Accessibility requirements suitable for public procurement of ICT products and services in Europe".
- [i.4] ETSI ES 200 381-1: "Telephony for hearing impaired people; Inductive coupling of telephone earphones to hearing aids Part 1: Fixed-line speech terminals".
- [i.5] ETSI ES 200 381-2: "Telephony for hearing impaired people; Inductive coupling of telephone earphones to hearing aids; Part 2: Cellular speech terminals".
- [i.6] ETSI ETS 300 381: "Telephony for hearing impaired people; Inductive coupling of telephone earphones to hearing aids".
- [i.7] CEN/CLC/ETSI TR 101 551: "Guidelines on the use of accessibility award criteria suitable for public procurement of ICT products and services in Europe".
- [i.8] ETSI TR 102 612: "Human Factors (HF); European accessibility requirements for public procurement of products and services in the ICT domain (European Commission Mandate M 376, Phase 1)".
- [i.9] European Commission M 376: "Standardisation Mandate to CEN, CENELEC and ETSI in support of European accessibility requirements for public procurement of products and services in the ICT domain".



- [i.10] European Commission M 420: "Standardisation Mandate to CEN CENELEC and ETSI in support of European Accessibility Requirements for Public Procurement in the Built Environment".
- [i.11] ISO 9241-171:2008: "Ergonomics of human-system interaction-Part 171: Guidance on software accessibility".
- [i.12] ISO 21542:2011: "Building construction -- Accessibility and usability of the built environment".
- [i.13] ISO 26800: 2011: "Ergonomics -- General approach, principles and concepts".
- [i.14] ISO/IEC 17007:2009: "Conformity assessment -- Guidance for drafting normative documents suitable for use in conformity assessment".
- [i.15] ISO/IEC 13066-1:2011: "Information technology -- Interoperability with assistive technology (AT) -- Part 1: Requirements and recommendations for interoperability".
- [i.16] ISO/IEC 40500:2012: "Information technology -- W3C Web Content Accessibility Guidelines (WCAG) 2.0".
- [i.17] ISO/IEC TR 29138-1 "Information Technology -- Accessibility considerations for people with disabilities - User needs summary.
- [i.18] Supplement 1 to ITU-T H-Series Recommendations: "Application profile - sign language and lip-reading real time conversation using low bit rate video communication".
- [i.19] Telecommunications and Electronic and Information Technology Advisory Committee (TEITAC): "Report to the Access Board: Refreshed Accessibility Standards and Guidelines in Telecommunications and Electronic and Information Technology", April 2008.
- [i.20] TIA-825-A: 2003: "A Frequency Shift Keyed Modem for Use on the Public Switched Telephone Network".
- [i.21] TIA-1083-A (2010): "Telecommunications, Telephone Terminal equipment; Handset magnetic measurement procedures and performance requirements" - Telecommunications Industry Association.
- [i.22] US Access Board: "Draft Information and Communication Technology (ICT) Standards and Guidelines" March 2010 (ANPRM 2010).
- [i.23] US Access Board: "Draft Information and Communication Technology (ICT) Standards and Guidelines", December 2011 (ANPRM 2011).
- [i.24] US Department of Justice: "2010 ADA Standards for Accessible Design".
- [i.25] W3C® Recommendation (11 December 2008)/ISO/IEC 40500 (2012): "Web Content Accessibility Guidelines (WCAG) 2.0".
- NOTE: Available at <http://www.w3.org/TR/WCAG20/>.
- [i.26] W3C® Working Group Note (5 September 2013): "Guidance on Applying WCAG 2.0 to Non-Web Information and Communications Technologies (WCAG2ICT)".
- NOTE: Available at <http://www.w3.org/TR/wcag2ict/>.
- [i.27] Recommendation ITU-T F.700: "Framework Recommendation for multimedia services".
- [i.28] Recommendation ITU-T F.703: "Multimedia conversational services".

## 3 Definition of terms, symbols and abbreviations

### 3.1 Terms

For the purposes of the present document, the terms given in ETSI EG 201 013 [i.2] and the following apply:

**accessibility:** extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities, to achieve a specified goal in a specified context of use

NOTE 1: This definition of term is from ISO 26800 [i.13].

NOTE 2: Context of use includes direct use or use supported by assistive technologies.

**assistive technology:** hardware or software added to, connected to, or incorporated within, a system that increases accessibility for an individual

NOTE 1: This definition of term is from ISO 9241-171 [i.11].

NOTE 2: Examples are braille display, screen reader, screen magnification software, eye tracking devices.

NOTE 3: Where ICT does not support directly connected assistive technology, but can be operated by a system connected over a network or other remote connection, such a separate system (with any included assistive technology) can also be considered assistive technology.

**electronic content:** information and sensory experience to be communicated to the user by means of ICT

**real-time text:** form of text conversation in point to point situations or in multipoint conferencing where the text being entered is displayed on all terminals in such a way that the communication is perceived by the user as being continuous

### 3.2 Symbols

Void

[kSIST-TS FprCEN/CLC/ETSI TR 101550:2022  
https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022](https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-851b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022)

### 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ADA	Americans with Disabilities Act
ANPRM	Advance Notice of Proposed Rule Making
ANSI	American National Standards Institute
ATAG	Authoring Tool Accessibility Guidelines
FPC	Functional Performance Criteria
FPS	Functional Performance Statement
GSM	Global System for Mobile communications
ICT	Information and Communication Technologies
IEC	International Electrotechnical Commission
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISO	International Organisation for Standardization
JWG	Joint Working Group
PSTN	Public Switched Telephone Network
RTT	Real-Time Text
SI	Système International (International System of Units)
TEITAC	Telecommunications and Electronic and Information Technology Advisory Committee
W3C	World Wide Web Consortium
WCAG	Web Content Accessibility Guidelines (of W3C)

---

## 4 Overview

When writing EN 301 549 (V1.1.1) [i.3], hereafter, for the purpose of the present document, called "the EN", there were a number of key requirements that had to be taken into account.

It was important to build on the significant work undertaken during Phase 1 of Mandate M 376 [i.9] which resulted in ETSI TR 102 612 [i.8]. Phase 1 was the preparatory work that preceded the Phase 2 activity of preparing a European Standard (Norm) (EN) containing in one volume all the necessary functional accessibility requirements for public procurement of products and services in the ICT domain. This EN, EN 301 549 (V1.1.1) [i.3], was intended to contain these requirements in a fully demonstrable and testable form, compliant with ISO/IEC 17007 [i.14], the standard which gives guidance for drafting normative documents suitable for use in conformity assessment.

It was important that the document should achieve global acceptability, originally by taking into account the requirements of the US Telecommunications and Electronic and Information Technology Advisory Committee (TEITAC) Report published in April 2008 [i.19] on which the Phase 1 work was based. Unfortunately, before work started on Phase 2 of the Mandate [i.9], the US Access Board set out in an Advance Notice of Proposed Rulemaking (ANPRM) of their "Information and Communication Technology (ICT) Standards and Guidelines" [i.23].

In order to maintain the aim to reduce the burden on manufacturers by providing a common set of public procurement requirements for accessibility which as far as possible could apply to markets both in Europe and in the rest of the world it was necessary to change the work to meet the new US ANPRM [i.23]. This has been achieved whilst meeting the requirements mandated by the European Commission.

Whilst trying to achieve a globally acceptable standard it was important to ensure that the requirements of the EN took account of the European public procurement needs, particularly in those areas affected by European legislation. It was also necessary to take note of some areas where aspects of performance are controlled by different legislative requirements, such as telephone transmission.

Where websites are concerned, it was important to achieve global status for the accessibility requirements by referring to the well-established process of conformance to the internationally accepted web content accessibility guidelines (WCAG) produced by the World Wide Web Consortium (W3C), an international community that develops recommendations. These recommendations are currently at version WCAG 2.0 [i.25], which was adopted in December 2008.

[https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-](https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-8511b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022)

[https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-](https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-8511b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022)

[https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-](https://standards.iteh.ai/catalog/standards/sist/4e07b8ad-2e75-4835-8863-8511b04c99349/ksist-ts-fprcen-clc-etsi-tr-101550-2022)

---

## 5 Preparation of the EN requirements

### 5.1 General

For each potential requirement identified in Phase 1 of the work on Mandate M 376 [i.9], the sources identified in the report were checked to see if they were appropriate to be a potential source of wording for the requirement (i.e. whether it was a widely accepted global standard) and, where appropriate, to identify whether the specific text in the standard could be taken into account when wording the requirement. A full listing of the sources that relate to each requirement can be found in ETSI TR 102 612 [i.8] produced at the end of Phase 1.

The original Terms of Reference for the work on the EN were based on the output of Phase 1 of the mandate. Subsequent to the publication of the Phase 1 reports there were considerable developments in relevant international regulations and standards. The publication by the US Access Board of an Advance Notice of Proposed Rulemaking (ANPRM) [i.22] in March 2010 was particularly significant.